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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,021	07/14/2003	Anders Fredrik Tufvesson	MERL-1473	6395

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Patent Department
Mitsubishi Electric Research Laboratories, Inc.
201 Broadway
Cambridge, MA 02139

EXAMINER

BOCURE, TESFALDET

ART UNIT	PAPER NUMBER
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2611

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,021

Applicant(s)

TUFVESSON, ANDERS FREDRIK

Examiner

Tessfaldet Bocure

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/14/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/14/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed "equalizer" in claim 15 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed "a plurality of basic building blocks are interconnected by connecting the delay block to the multiplier of a previous basic building block via the conjugate block," in claim 13 and as shown in figure 2 and "a plurality of basic building blocks are interconnected by connecting the filter to the multiplier of a previous basic building block via the conjugate block" in claim 14 and shown in figure 3 are not disclosed as to how the interconnected delay elements in figure 2 function with each other and with respect to the rest of the elements, integrators, and decision elements. The same is true with the interconnected filter elements in figure 3.

It is not disclosed how the receivers in figures 2 and 3 function as claimed.

The $(n-2)$ D in figure 3 is not disclosed.

It is confusing that b_{in} has been disclosed in page paragraph [031] as input signal while shown as matched filter 113 in figures 2 and 3.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2,5,7,9,10-12 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hulbert et al. Hulbert hereinafter (5,793,796).

Hulbert teaches a wideband spread spectrum communication system having a RAKE receiver (see figures 2-7) comprising: a plurality of matched filters 180 and 182 (claims 9 and 10) for match filtering the received signals with the internally generated signal; delay the matched filter output by delay element (see delay elements in figures 2-7); multiplying the delayed match filtered signal with undelayed signal (see multipliers in figures 2-7); integrating (see integrators 80,82,160,162) the multiplied output; and decoding (see decoders and decision devices in figures 2-7), claimed decision, for outputting the received signal as in claims 1 and 16.

Further to claim 2, the received data is digitally modulated received by the complex matched filter are Inphase and Quadrature signal, where one of the signal is 90 degree shifted from the other, is equivalent to the claimed complex conjugate as in claim 2.

Further to claim 5, the received data is digitally modulated using Phase Shift Keying, claimed phase Modulation.

Further to claim 7, the RAKE receiver having parallel receivers as shown in figure 2 process the received signal in parallel.

Further to claim 11, the match filters in the receiver of Hulbert inherently maximizes the signal-to-noise ratio of the received signal.

Further to claim 12, the RAKE receiver in the receiver of Hulbert inherently receives a plurality of modulated signal.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3,4,5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hulbert hereinafter (5,793,796).

Hulbert teaches a wideband spread spectrum communication system having a RAKE receiver claimed in claim 1 as indicated above rejection.

What Hulbert fails to teach is that the received signal is modulated according to Pulse Position modulation as in claim 2, Pulse Amplitude Modulation as in claim 4 and On-Off Keying Modulation in claim 8. However such a modulation method in wideband communication is notoriously known¹ and examiner is taking an official notice.

¹ See for example, US patent publication numbers 2004/0218687 and 2004/0175173, where the wideband signals can be modulated using PPM, OFF-on keying and PAM.

Therefore, it would have been obvious to one of an ordinary skill in the art to modulate the signal received in the receiver of Hulbert using PPM,PAM or On-Off keying Modulation at the time the invention was made.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hulbert hereinafter (5,793,796) in view of Balakrishnan et al. (US patent Publication number 2004/0151269).

Hulbert teaches a wideband spread spectrum communication system having a RAKE receiver claimed in claim 1 as indicated above rejection.

What Hulbert fails to teach is that the match filtered signal being equalized as in claim 15. Balakrishnan for the same endeavor as the instant application and that of Hulbert teaches a wideband receiver having match filters for despreading the received spread spectrum signal and equalizer (620) for equalizing the despread signal.

The equalizer in the receiver of Balakrishnan would compensate the multipath effect of the received signal and maximize the spreading gain. See paragraph [0045].

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Therefore it would have been obvious to one of an ordinary skill in the art to use the equalizer of Balakrishnan in the receiver of Hulbert at the time the invention was made.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent Publication number 2004/0242155 to Spiridon et al. and US patent numbers 5,353,301, 6,788,736, 6,947,489 issued to Mitzlaff, Kawama et al., Krasner and Atarius et al. respectively disclose a wideband receiver having a matching filter, integrator and multiplier.

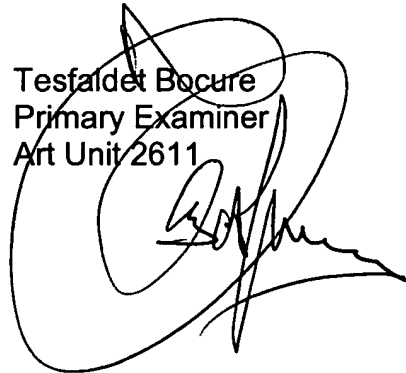
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti (Jay) Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tesfaldet Bocure
Primary Examiner
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A large, stylized handwritten signature in black ink, overlapping the printed name and title of the examiner.

T.Bocure